

Claims

We claim:

1. A tray-and-slide-frame combination for holding microscope slides horizontally for automated chemical processing, comprising
 - 5 (a) a tray having four sides and a bottom, the bottom having means for locating and positioning slide frames within it; and
 - (b) at least one removable slide frame for holding at least one slide independent of the tray, the slide frame comprising a beam and means for grasping the slides.
- 10 2. The tray of claim 1 wherein means for locating slide frames comprises inner and outer slide frame supports, said supports having notches for receiving the slide frame beams, the means for locating further comprising nubs on the bottom of said slide frames.
3. The tray of claim 1 wherein the means for locating comprises magnets for enabling
15 location of the tray within the automated staining apparatus.
4. The tray of claim 1 further comprising at least one slide support post per slide, said post projecting upwards from the floor of said tray for supporting each slide under the sample area of the slide.
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5. The tray of claim 4 wherein the height of the slide support post is such that a downwards pitch of the slide from interior to exterior of the tray is from about 0 to about 0.5%.
- 25 6. The tray of claim 1 further comprising handles for grasping the tray and moving it within the automated stainer apparatus.
7. The tray of claim 1 further comprising means for stacking the tray.

8. A slide tray for holding microscope slides substantially horizontally for automated chemical processing, comprising

a) a tray having a floor; and

b) integral means for holding slides securely and fixedly positioned with respect to said floor.

9. The slide tray of claim 8 wherein said tray is rectangular.

10. The tray of claim 8 wherein said integral means for holding slides comprises slide support elements.

11. The tray of claim 10 wherein said slide support elements comprise a retaining post and a support post, said retaining post having means for securely positioning at least one corner of a slide, and said support post positioned on said tray floor to support the other end of said slide.

12. The tray of claim 11 wherein said retaining post is mounted on the inboard aspect of the tray, and said support post is mounted on the outboard aspect of the tray.

13. The tray of claim 11 wherein said retaining post has cutout features including a support shoulder that provides a vertical support for said slide.

14. The tray of claim 11 wherein said support post and said retaining post define a substantially horizontal plane when the slide is held in place by them.

15. The tray of claim 14 wherein said substantially horizontal plane tilts from about 0.8 degrees to about 0.4 degrees outboard.

16. The tray of claim 8 wherein said floor is sloped towards a longitudinal drain channel.

17. The tray of claim 10 wherein said tray additionally comprises a slide positioning element.

18. The tray of claim 17 wherein said slide positioning element comprises an outboard positioning post rising from said tray floor to a point above the bottom of said slide and also positioned to limit the slide's movement in the front-back direction.

19. The tray of claim 8 wherein said tray optionally includes sides.

20. A slide tray for holding microscope slides substantially horizontally for automated chemical processing, comprising

a) a tray having a floor; and

b) support and positioning elements for supporting each slide in substantially horizontal and spacially fixed orientation relative to each slide, said elements attached to the floor of the tray.

21. The slide tray of claim 20 wherein said support elements comprise a retaining post and a support post, said retaining post having means for securely positioning at least one corner of a slide, and said support post positioned on said tray floor to support the other end of said slide.

22. The tray of claim 21 wherein said retaining post is mounted on the inboard aspect of the tray, and said support post is mounted on the outboard aspect of the tray.

23. The tray of claim 21 wherein said retaining post has cutout features including a support shoulder that provides a vertical support for said slide.

24. The tray of claim 21 wherein said support post and said retaining post define a substantially horizontal plane when the slide is held in place by them.

25. The tray of claim 24 wherein said substantially horizontal plane tilts from about 0.8 degrees to about 0.4 degrees outboard.

26. The tray of claim 20 wherein said floor is sloped towards a longitudinal drain
5 channel.

27. The tray of claim 20 wherein said slide positioning element comprises an outboard positioning post rising from said tray floor to a point above the bottom of said slide and also positioned to limit the slide's movement in the front-back direction.